



July 7, 2016

**VIA ECFS**

Ms. Marlene Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, D.C. 20554

**Re: *Ex Parte* - Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, GN  
Docket No. 14-177**

Dear Ms. Dortch:

The Satellite Industry Association (“SIA”)<sup>1</sup> responds herein to a request for information from Erin McGrath, Legal Advisor to Commissioner O’Rielly, regarding satellite networks, both approved and planned, in the 28 GHz band.

It is essential to note that each network consists of satellite(s) that need to be authorized, designed, built under contract and bond, and launched at the cost of hundreds of millions of dollars each. In addition, each satellite must communicate with ground

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<sup>1</sup> SIA is a U.S.-based trade association providing representation of the leading satellite operators, service providers, manufacturers, launch services providers, and ground equipment suppliers. Since its creation twenty years ago, SIA has advocated on behalf of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business. SIA Executive Members include: The Boeing Company; DIRECTV; EchoStar Corporation; Intelsat S.A.; Iridium Communications Inc.; Kratos Defense & Security Solutions; Ligado Networks; Lockheed Martin Corporation; Northrop Grumman Corporation; OneWeb; SES Americom, Inc.; Space Exploration Technologies Corp.; SSL; and ViaSat, Inc. SIA Associate Members include: ABS US Corp.; Artel, LLC; COMSAT Inc.; DigitalGlobe Inc.; DRS Technologies, Inc.; Eutelsat America Corp.; Global Eagle Entertainment; Glowlink Communications Technology, Inc.; Hughes; iDirect Government Technologies; Inmarsat, Inc.; Kymeta Corporation; O3b Limited; Panasonic Avionics Corporation; Planet Labs Inc.; TeleCommunication Systems, Inc.; Telesat Canada; TrustComm, Inc.; Ultisat, Inc.; and XTAR, LLC.

infrastructure, including gateways and customer terminals.<sup>2</sup>

Earth Station networks require significant infrastructure and redundancy for security and resilience. For example, in addition to the real estate, gateways can require antennas costing millions of dollars, connections to extremely high quality fiber (e.g., up to 100 Gbps) and additional radio access network and other equipment to support the facility.

The FCC has issued forty licenses for gateway facilities, some with multiple antennas, for operation as part of the associated operational and approved networks.<sup>3</sup> Additional gateway facilities are under construction as already approved and planned networks roll out. The future build-out of earth stations, however, will not impede the deployment of 5G systems. Hundreds of future applications for earth stations, designed and built to complete satellite network investments, are anticipated – not thousands. This leaves ample opportunity to locate in areas that serve the needs of the satellite network while ensuring compatibility with 5G networks.

Extremely large investments in antenna technology and designs for end user antennas and devices have also been made and are underway. These investments can run into the tens of millions of dollars for R&D, including for state of the art configurations (e.g., meta materials antennas, low-profile aviation, small car top, and dual-band antennas). Many of these antennas are transforming the communications industry, including for terrestrial networks.

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<sup>2</sup> O3b and its partners hold customer terminal authorizations in the 27.5-28.35 GHz band that provide service to U.S. customers. *See* O3b Limited, File Nos. SES-MS-20151021-00760 (granted January 29, 2016); SES-LIC-20160107-00027 (granted June 15, 2016). O3b also holds site-licensed earth station licenses for terminals that play a critical role in both space and ground segment operations. *See* O3b Limited, File Nos. SES-LIC-20130618-00516 (granted July 7, 2016); SES-LIC-20141022-00809 (granted June 5, 2015); SES-LIC-20150310-00138 (granted Sept. 30, 2015).

<sup>3</sup> ViaSat, Inc., File Nos. SES-LIC-20110211-00150, Call Sign E110015 (granted Oct. 21, 2011); SES-LIC-20110228-00212, Call Sign E110026 (granted Oct. 21, 2011); File Nos. SES-LIC-20110318-00318, Call Sign E110033 (granted Oct. 21, 2011); SES-LIC-20110318-00323, Call Sign E110036 (granted Oct. 21, 2011); SES-LIC-20110328-00373, Call Sign E110043 (granted Oct. 21, 2011); SES-LIC-20110328-00374, Call Sign E110044 (granted Oct. 21, 2011); SES-LIC-20110328-00375, Call Sign E110045 (granted Oct. 21, 2011); SES-LIC-20110328-00376, Call Sign E110046 (granted Oct. 21, 2011); SES-LIC-20110328-00378, Call Sign E110047 (granted Oct. 21, 2011); SES-LIC-20110328-00379, Call Sign E110048 (granted Oct. 21, 2011); SES-LIC-20110328-00380, Call Sign E110049 (granted Oct. 21, 2011); SES-LIC-20110328-00381, Call Sign E110050 (granted Oct. 21, 2011); SES-LIC-20110328-00382, Call Sign E110051 (granted Oct. 21, 2011); SES-LIC-20110328-00383, Call Sign E110052 (granted Oct. 21, 2011); SES-LIC-20110418-00474, Call Sign E110064 (granted Oct. 21, 2011); SES-LIC-20110419-00488, Call Sign E110065 (granted Oct. 21, 2011); Inmarsat Mobile Networks, Inc., 30 FCC Rcd 2770 ¶ 12 (2015); O3b Limited, File Nos. SES-LIC-20100723-00952, Call Sign E100088 (granted Sept. 25, 2012); SES-LIC-20130124-00089, Call Sign E130021 (granted June 20, 2013); SES-LIC-20130618-00516, Call Sign E130107 (granted June 24, 2015); SES-LIC-20141022-00809, Call Sign E140107 (granted June 5, 2015); SES-LIC-20150310-00138, Call Sign E150018 (granted Sept. 30, 2015); HNS License Sub, LLC, File Nos. SES-LIC-20150604-00332 through -00348, Call Signs E150076 through E150092 (granted Dec. 2-8, 2015); Media Networks Services USA Inc., File No. SES-SES-LIC-20130219-00188, Call Sign E130034 (granted Aug. 13, 2013).

In order to achieve the advanced throughputs of high capacity satellites that compete with terrestrial networks, more gateways, spectrum and other resources are required, facilitating competition with terrestrial broadband providers and, in addition, providing broadband services where terrestrial providers cannot.

The satellite industry has led and continues to lead Ka-band deployment in the 28 GHz band, both domestically and globally. The FCC has authorized both GSO and NGSO satellite networks in the 28 GHz band, and there are several applications pending to gain market access.<sup>4</sup> SIA members are also investing and planning for future systems in the band, both in GSO and NGSO. Apart from these current and future SIA networks, other domestic and international satellite systems are also underway and would potentially be affected by the FCC's decision in this proceeding. The capacity these systems are bringing today and will bring in the future is designed to meet the needs of millions of users and devices, regardless of location.

Overall, multiple billions of dollars have been invested in end-to-end satellite networks using 28 GHz to enable the high throughput capacity and broadband speeds to which the U.S. public, enterprises, and government require access. The 28 GHz band is key to satellite networks delivering this capacity, just as it is for terrestrial networks. If the FCC wants to encourage intermodal competition for connectivity in the U.S., permitting flexibility in the usage of satellite networks in the 28 GHz band is a key enabler to that goal.

Additionally, the frequency band of 37.5-40 GHz ("37/39 GHz") is an important expansion band for satellite services and offers tremendous opportunities for a new generation of affordable broadband satellite services that can connect all Americans, regardless of location, at data rates that substantially exceed the Commission's current benchmarks. The 37/39 GHz band is a receive-only band for satellite services, and analysis has shown that sharing is possible between satellite services and proposed 5G systems in this band.<sup>5</sup> The satellite industry is investing and planning to use the 37/39 GHz band to

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<sup>4</sup>Intelsat License LLC, File No. SAT-LOA-20150327-00016, Call Sign S2939 (Granted 05/08/15); ViaSat, Inc., File No. SAT-LOI-20080107-00006, Call Sign S2747 (Granted 02/27/09); ViaSat, Inc., File No. SAT-MOD-20141105-00121, Call Sign S2902 (Granted 01/09/15); Hughes Network Systems, LLC, File No. SAT-MOD-20141210-00127, Call Sign S2834 (Granted 03/20/15); Viasat, Inc., File No. SAT-MOD-20150618-00037, Call Sign S2917 (Granted 07/24/15); Hispamar Satellites, S.A., File No. SAT-MPL-20130319-00049, Call Sign S2886 (Granted 06/14/13); New Skies Satellites B.V., File No. SAT-PPL-20160117-00005, Call Sign S2950 (Granted 03/04/16); Inmarsat Mobile Networks, Inc., 30 FCC Rcd 2770 ¶ 12 (2015); ViaSat, Inc., File No. SAT-LOI-20160208-00014, Call Sign S2952 (Filed 02/08/16); ViaSat, Inc., File No. SAT-LOI-20160208-00015, Call Sign S2953 (Filed 02/08/16); ViaSat, Inc., File No. SAT-LOI-20160208-00016, Call Sign S2954 (Filed 02/08/16); Telesat International Limited, File No. SAT-PPL-20160225-00020, Call Sign S2955 (Filed 02/25/16); SES Satellites (Gibraltar) Limited, File No. SAT-PPL-20160126-0007, Call Sign S2951 (Filed 01/26/2016); O3b Limited, File N. SAT-LOI-20141029-00118, Call Sign S2935 (Granted 11/14/14); WorldVu Satellites Limited, File No. SAT-LOI-20160428-00041, Call Sign S2963 (Filed 04/28/16); O3b Limited, File No. SAT-LOI-20160624-00060, Call Sign S2967 (Filed 06/24/16).

<sup>5</sup> See Boeing Company filing: Written *Ex Parte* Notice, GN Docket No. 14-177, IB Docket Nos. 15-256 and 97-95; RM-11664; and WT Docket No. 10-112, July 5, 2016

provide low-latency, very high data-rate broadband service throughout the United States and around the world. Thus, to meet the Commission's goal of providing broadband services to all users, continued satellite access to the 37/39 GHz band is critical.

Respectfully submitted,

**SATELLITE INDUSTRY ASSOCIATION**

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